

### ABSTRACT OF THE DISCLOSURE

Stimulating rays produced by a line light source are linearly irradiated onto an area of a stimulable phosphor sheet, on which a radiation image has been stored, the stimulating rays causing the sheet to emit light in proportion to an amount of energy stored thereon during its exposure to radiation. Light emitted from the exposed linear area of the sheet is received with a line sensor comprising photoelectric conversion devices arrayed along each of a length direction of the linear area of the stimulable phosphor sheet and a direction normal to the length direction. The sheet is moved with respect to the line light source and the line sensor and in a direction different from the length direction of the linear area of the sheet. Operation processing is performed on outputs of the photoelectric conversion devices, which outputs have been obtained at respective positions of movement and correspond to an identical site on the sheet.